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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,491	12/18/2001	Alexander Lifson	00-681	6559

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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3745

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DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/023,491

Applicant(s)

LIFSON ET AL.

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-10 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Specification

The disclosure is objected to because of the following informality: Appropriate correction is required.

On page 1, line 8, -- the -- should be inserted before "housing".

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required, none of which have antecedent basis in the specification:

The means being selected from combinations of pressure influencing structures and temperature influencing structures (claim 2).

The additional thermal mass positioned on the rotor (claim 8).

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the rotor pitch that decreases in magnitude from the suction end to the discharge end (claim 4), and the additional thermal mass positioned on the rotor (claim 8) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

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A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 10 is objected to because of the following informality: Appropriate correction is required.

In claim 10, line 4, "distribute" should be changed to -- distributed --.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent 3-78,594 (figures 1, 3, and 5-6). Note the screw compressor comprising housing 2 and screw rotor 6/106/506/606 disposed in the housing and rotatable relative to the housing for compressing a refrigerant, with the housing and the screw rotor having a rest condition, and an operating condition wherein at least one of the housing and rotor deflect from the rest condition, and means (the decreasing pitch of the rotor 6/106/506/606, the additional housing thermal masses 7, 5b, and 5, and the additional rotor thermal mass at 115) for reducing deflection from

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the rest condition and evenly distributing deflection from the rest condition when the rotor is in the operating condition, with clearance between the housing and the rotor being optimized in the operating condition. The means is selected from the group consisting of pressure influencing structures (the decreasing pitch of the rotor 6/106/506/606), temperature influencing structures (the additional housing thermal masses 7, 5b, and 5, and the additional rotor thermal mass at 115), and combinations thereof. Note that the rotor has a suction end near 9, a discharge end near 14, and a profile geometry in the form of the pitch that decreases in magnitude from the suction end to the discharge end, which inherently is selected to provide a non-linear pressure loading from the suction end to the discharge end whereby a resultant load on the rotor is reduced. The rotor 6/106/506/606 has a pitch that decreases in magnitude from the suction end to the discharge end (see figures 1, 3, and 5-6), which results in the resultant load being applied along the rotor at a point closer to the discharge end than the suction end. Note the additional thermal mass positioned on the housing at 7, 5b, 5, and the additional thermal mass at 115 positioned on the rotor so as to absorb heat generated by the compressor in the operating condition and reduce thermal distortion caused by the heat. The additional thermal mass comprises a section 5, 5b of additional wall thickness on the housing. The operating condition is an expected operating envelope for the compressor, with the clearance being smaller and more evenly distributed in the operating condition than in the rest condition. The recitation in claim 1, lines 7-10 of "means for at least one of reducing deflection from said rest condition and evenly distributing deflection from the rest condition when said rotor is in said operating condition" invokes 35 USC 112, sixth paragraph. The means disclosed by the Japanese Patent in the form of the decreasing pitch of the rotor 6/106/506/606, the additional housing thermal masses 7, 5b,

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and 5, and the additional rotor thermal mass at 115 perform the identical function specified in the claims, and the means in the form of the decreasing pitch of the rotor 6/106/506/606, the additional housing thermal masses 7, 5b, and 5, and the additional rotor thermal mass at 115 are substantially equivalent of Applicants' disclosed means in the specification. With regard to the recitation in claim 1, line 4 of "for compressing a refrigerant", this is a recitation of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Allowable Subject Matter

Claims 6-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (703)-308-2638. The examiner can normally be reached on Monday-Friday from 10:00-6:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (703) 308-1044. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



Christopher Verdier
Primary Examiner
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C.V.
August 28, 2003